Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Doc. Number: M185BGE-L21-DR2- 01

☐ Tentative Specification

■ Preliminary Specification

☐ Approval Specification

MODEL NO.: M185BGE-L21

Customer:

APPROVED BY **SIGNATURE**

Name / Title _____ _____

Note

Please return 1 copy for your confirmation with your signature and comments.

Approved By	Checked By	Prepared By

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

CONTENTS

1. GENERAL DESCRIPTION 4
1.1 OVERVIEW 4
1.2 GENERAL SPECIFICATIONS 4
2. MECHANICAL SPECIFICATIONS 4
3. ABSOLUTE MAXIMUM RATINGS 4
3.1 ABSOLUTE RATINGS OF ENVIRONMENT 4
3.2 ELECTRICAL ABSOLUTE RATINGS 5
3.2.1 TFT LCD MODULE 5
3.2.2 BACKLIGHT UNIT 5
4. ELECTRICAL SPECIFICATIONS 6
4.1 FUNCTION BLOCK DIAGRAM 6
4.2. INTERFACE CONNECTIONS 6
4.3 ELECTRICAL CHARACTERISTICS 8
4.3.1 LCD ELECTRONICS SPECIFICATION 8
4.3.2 Vcc Power Dip Condition 10
4.3.3 BACKLIGHT UNIT (LED matrix is 7S4P) 10
4.3.4 LIGHTBAR Connector Pin Assignment 11
4.4 LVDS INPUT SIGNAL SPECIFICATIONS 11
4.4.1 LVDS DATA MAPPING TABLE 11
4.4.2 COLOR DATA INPUT ASSIGNMENT 12
4.5 DISPLAY TIMING SPECIFICATIONS 13
4.6 POWER ON/OFF SEQUENCE 15
5. OPTICAL CHARACTERISTICS 16
5.1 TEST CONDITIONS 16
5.2 OPTICAL SPECIFICATIONS 16
6. RELIABILITY TEST ITEM 19
7. PACKING 20
7.1 PACKING SPECIFICATIONS 20
7.2 PACKING METHOD 20
7.3 PALLET 21
9. PRECAUTIONS 27
9.1 ASSEMBLY AND HANDLING PRECAUTIONS 27
9.2 STORAGE PRECAUTIONS 27
9.3 OPERATION PRECAUTIONS 27
9.4 SAFETY PRECAUTIONS 27
9.5 SAFETY STANDARDS 27
9.6 OTHER 27
Appendix. OUTLINE DRAWING 27

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

REVISION HISTORY

Version	Date	Page	Description
V.0	Dec.08, 2010	All	Spec V.0 was first issued.
V.1	Jan.08, 2011	10	IPIN 敘述有修改，Page 頁碼有修改

www.panelook.com

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

1. GENERAL DESCRIPTION

1.1 OVERVIEW

M185BGE-L21 is a 18.5" TFT Liquid Crystal Display module with WLED Backlight unit and 30 pins 1ch-LVDS interface. This module supports 1366 x 768 Full HD mode and can display up to 16.7M colors. The converter module for Backlight is not built in.

1.2 GENERAL SPECIFICATIONS

Item	Specification	Unit	Note
Screen Size	18.5" real diagonal		
Driver Element	a-si TFT active matrix	-	-
Pixel Number	1366x R.G.B. x 768	pixel	-
Pixel Pitch	0.3(H) X 0.3 (V)	mm	-
Pixel Arrangement	RGB vertical stripe	-	-
Display Colors	16.7M	color	-
Transmissive Mode	Normally white	-	-
Surface Treatment	AG type, 3H hard coating	-	-
B/L UNIT	White LED Light bar (Right Side)		
LED connector	6Pin		
Luminance, White	300(Typ.)	Cd/m2	
Power Consumption	Total 10.137W (Max.) @ cell 3.30W (Max.), BL 6.66W (Max.)		(1)
ROHS, Halogen Free &TCO'03	ROHS, Halogen Free &TCO' 03 compliance		
Color Saturation	72% NTSC		

Note (1) The specified power consumption: Total= cell (reference 4.3.1)+BL (reference 4.3.3)

2. MECHANICAL SPECIFICATIONS

Item		Min.	Typ.	Max.	Unit	Note
Module Size	Horizontal (H)	429.87	430.37	430.87	mm	(1)
	Vertical (V)	254.1	254.6	255.1	mm	
	Thickness (T)	--	9.3	9.7	mm	
Bezel Area	Horizontal	413.2	413.4	413.6	mm	
	Vertical	233.8	234	234.2	mm	
Active Area	Horizontal		409.8		mm	
	Vertical		230.4		mm	
Weight			1420	1800	mm	

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

3. ABSOLUTE MAXIMUM RATINGS

3.1 ABSOLUTE RATINGS OF ENVIRONMENT

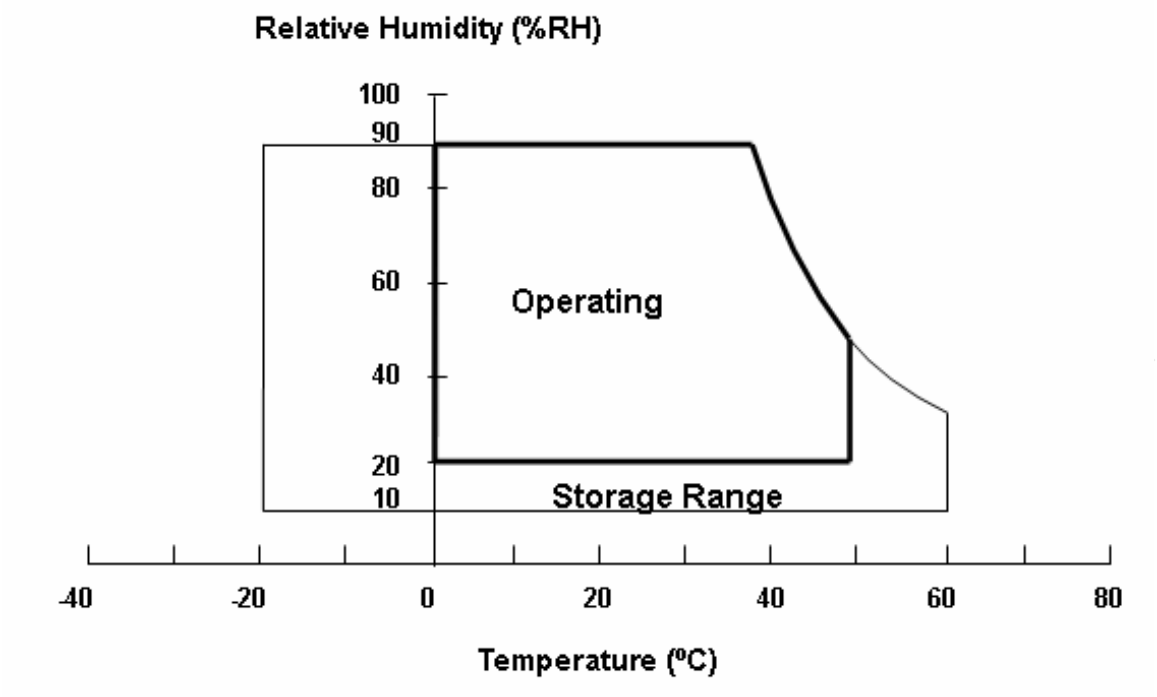
Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	TST	-20	60	ºC	(1)
Operating Ambient Temperature	TOP	0	50	ºC	(1), (2)

Note (1)
(a) 90 %RH Max. (Ta <= 40 ºC).
(b) Wet-bulb temperature should be 39 ºC Max. (Ta > 40 ºC).
(c) No condensation.
Note (2) The temperature of panel surface should be 0 ºC min. and 60 ºC max.

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



3.2 ELECTRICAL ABSOLUTE RATINGS

3.2.1 TFT LCD MODULE

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	VCCS	-0.3	6.0	V	(1)
Logic Input Voltage	V_{IN}	-0.3	4.3	V	

3.2.2 BACKLIGHT UNIT

Item	Symbol	Value			Unit	Note
		Min.	Typ	Max.		
LED Forward Current Per Input Pin	I_F	---	65	70	mA	(1), (2) Duty=100%
LED Reverse Voltage Per Input Pin	V_R	---	---	35	V	
LED Pulse Forward Current Per Input Pin	I_P	---	---	150	mA	(1), (2) Pulse Width≦10msec. and Duty≦10%

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.

Note (2) Specified values are for input pin of LED light bar at Ta=25±2 ℃ (Refer to 4.3.3 and 4.3.4 for further information).

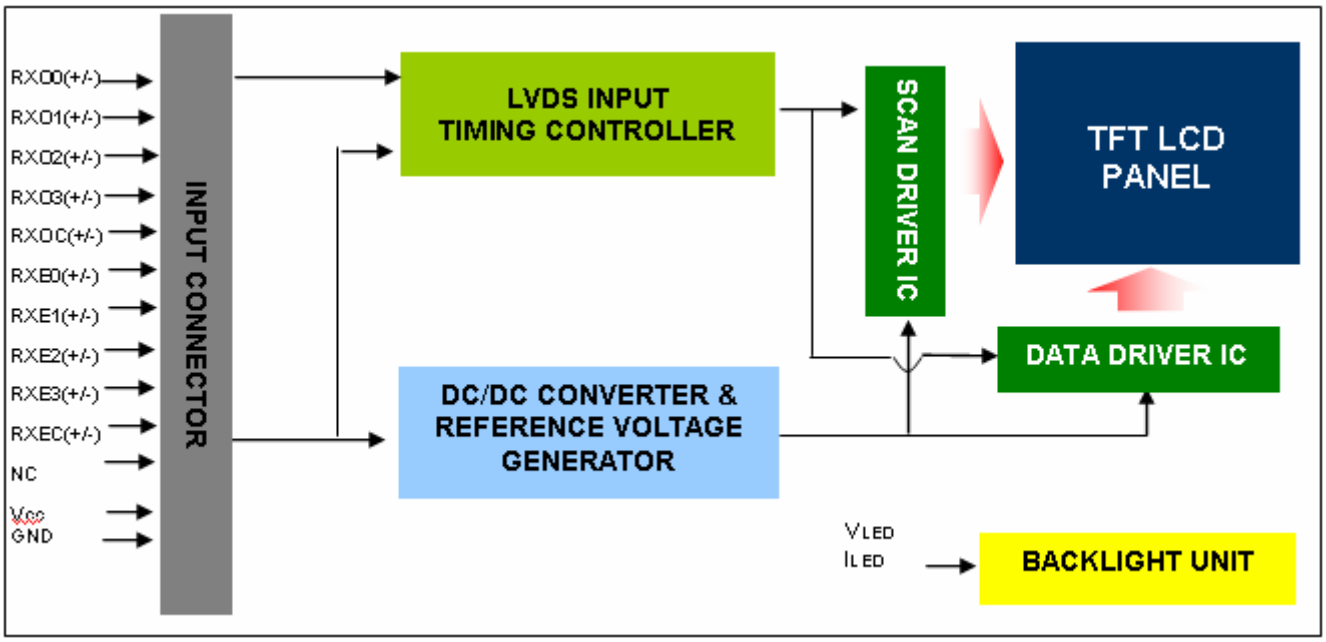
The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

4. ELECTRICAL SPECIFICATIONS

4.1 FUNCTION BLOCK DIAGRAM



4.2. INTERFACE CONNECTIONS

PIN ASSIGNMENT

Pin	Name	Description
1	NC	Not connection, this pin should be open
2	NC	Not connection, this pin should be open
3	NC	Not connection, this pin should be open
4	GND	Ground
5	RO0-	Negative LVDS differential data input. Channel O0 (odd)
6	RO0+	Positive LVDS differential data input. Channel O0 (odd)
7	GND	Ground
8	RX1-	Negative LVDS differential data input. Channel O1 (odd)
9	RX1+	Positive LVDS differential data input. Channel O1 (odd)
10	GND	Ground
11	RX2-	Negative LVDS differential data input. Channel O2 (odd)
12	RX2+	Positive LVDS differential data input. Channel O2 (odd)
13	GND	GND
14	RXCLK-	Negative LVDS differential clock input. (odd)
15	RXCLK+	Positive LVDS differential clock input. (odd)
16	GND	Ground
17	RX3-	Negative LVDS differential data input. Channel O3 (odd)
18	RX3+	Positive LVDS differential data input. Channel O3 (odd)
19	GND	Ground
20	NC	Not connection, this pin should be open
21	NC	Not connection, this pin should be open
22	NC	Not connection, this pin should be open
23	GND	Ground
24	GND	Ground
25	GND	Ground
26	Vcc	+5.0V power supply
27	Vcc	+5.0V power supply

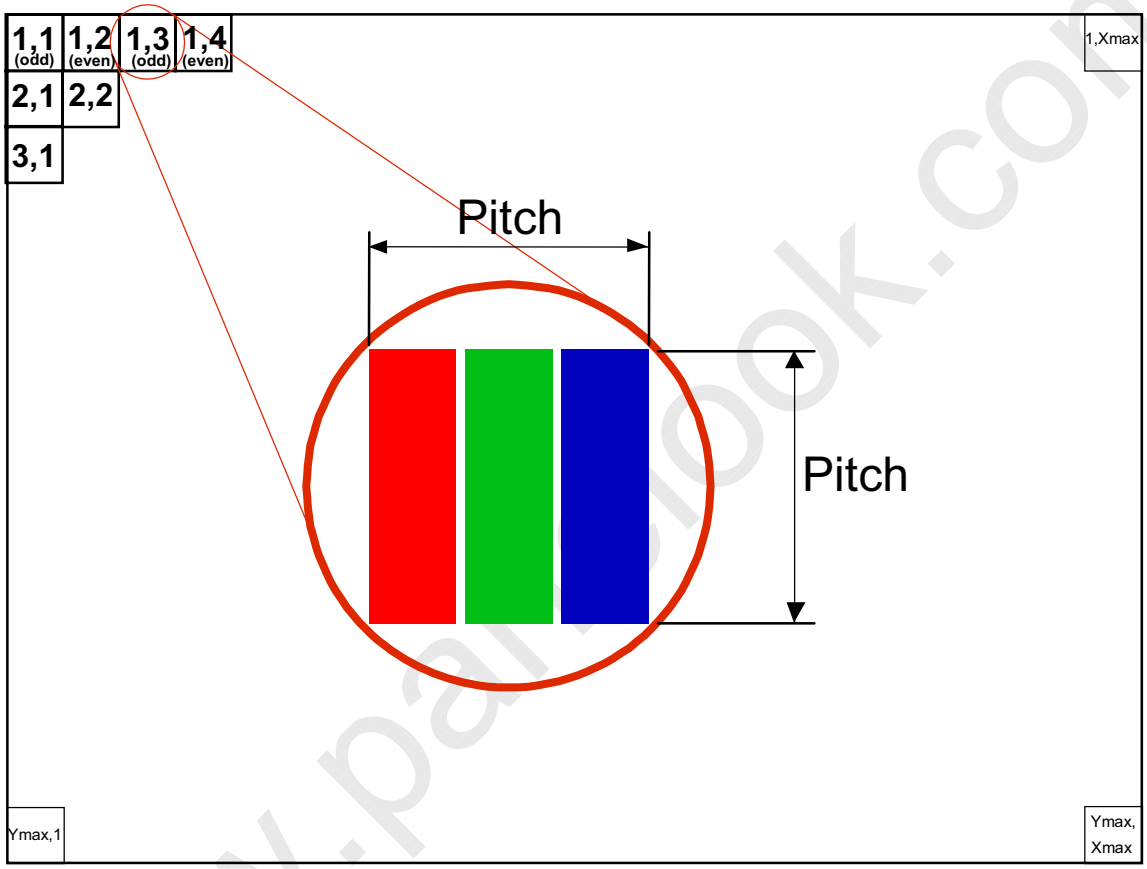
The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

28	Vcc	+5.0V power supply
29	Vcc	+5.0V power supply
30	Vcc	+5.0V power supply

Note (1) Connector Part No.:
GS23302-0011R-7F (FOXCONN)
Note (2) User's connector Part No:
Mating Wire Cable Connector Part No.: FI-X30H (JAE) or FI-X30HL (JAE)
Mating FFC Cable Connector Part No.: 217007-013001 (P-TWO) or JF05X030-1 (JAE).
Note (3) The first pixel is odd.
Note (4) Input signal of even and odd clock should be the same timing.



www.panelook.com

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

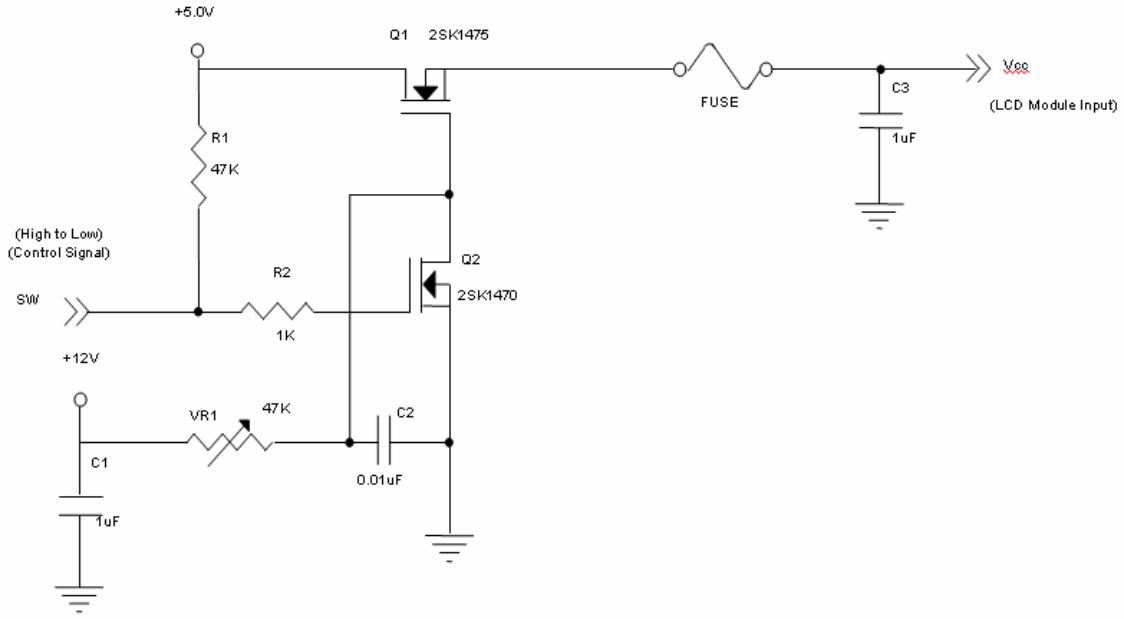
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

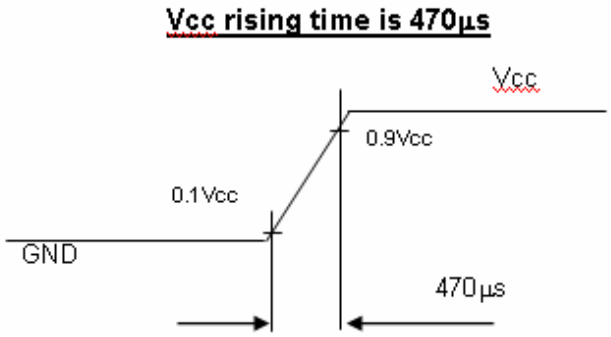
4.3 ELECTRICAL CHARACTERISTICS

4.3.1 LCD ELECTRONICS SPECIFICATION

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		Vcc	4.5	5	5.5	V	
Ripple Voltage		V_{RP}	-	-	0.3	V	(2)
Rush Current		I_{RUSH}	-	1.5	2	A	(2)
Power Supply Current	White	Icc	-	300	400	mA	(3)a
	Black	Icc	-	500	600	mA	(3)b
	Vertical Stripe	Icc	-	500	600	mA	(3)c
Power Consumption		PLCD	-	2.5	3.3	Watt	(4)
LVDS differential input voltage		Vid	100	-	600	mV	
LVDS common input voltage		Vic	1.0	1.2	1.4	V	
Logic High Input Voltage		VIH	-	-	100	mV	
Logic Low Input Voltage		VIL	100	-		mV	

Note (1) The ambient temperature is Ta = 25 ± 2 ºC.
Note (2) The VCCF is 5V and the frequency is 60HZ on black pattern.
Note (3) Measurement Conditions:



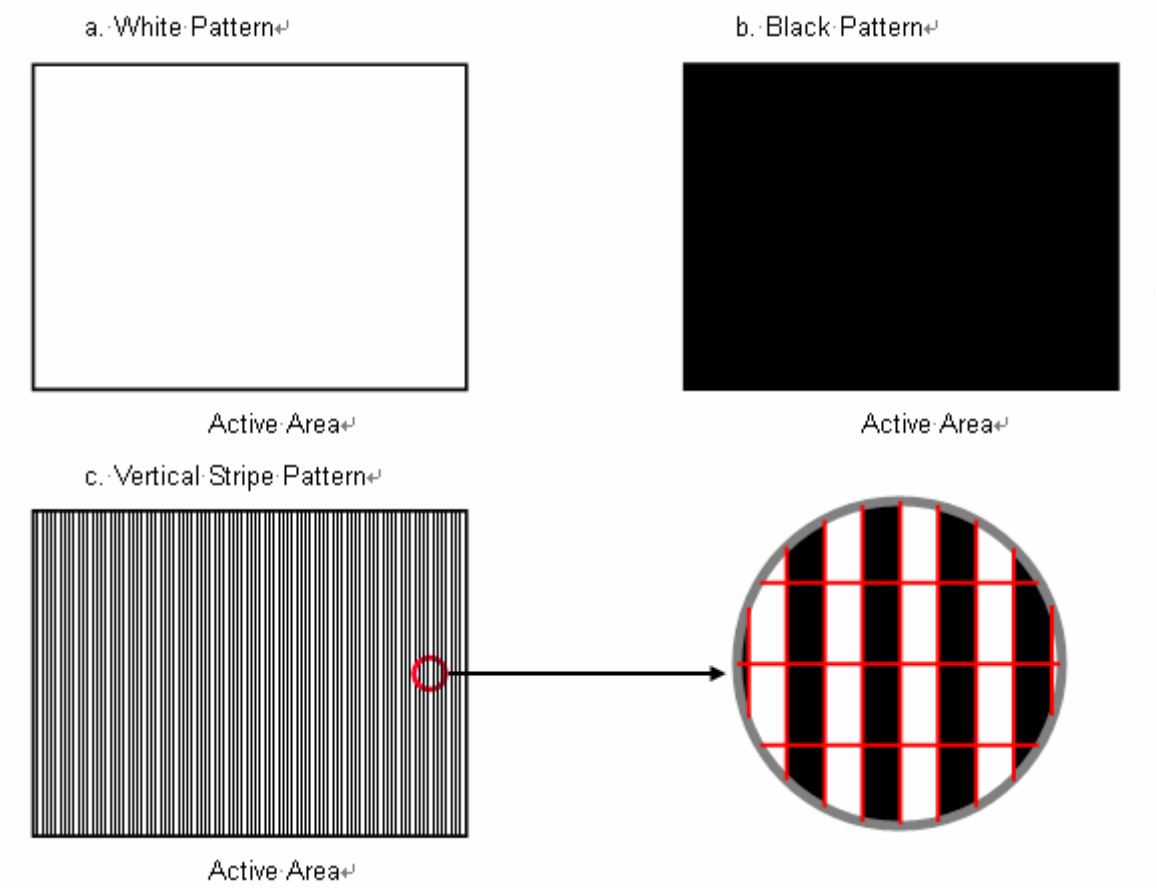


The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

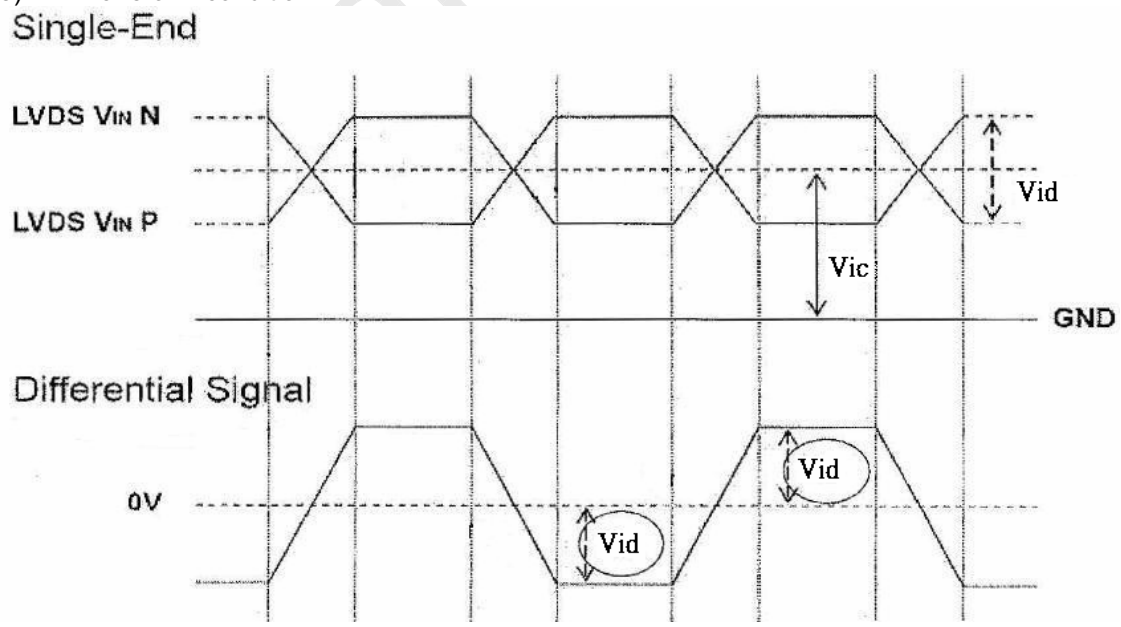
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Note (3) The specified power supply current is under the conditions at Vcc = 5.0 V, Ta = 25 ± 2 ºC, Fr = 60Hz, whereas a power dissipation check pattern below is displayed.



Note (4) The power consumption is specified at the pattern with the maximum current.

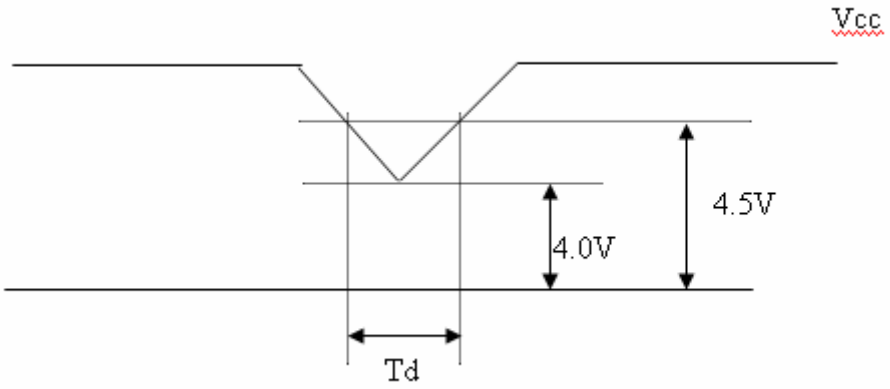
Note (5) VID waveform condition



The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

4.3.2 Vcc Power Dip Condition



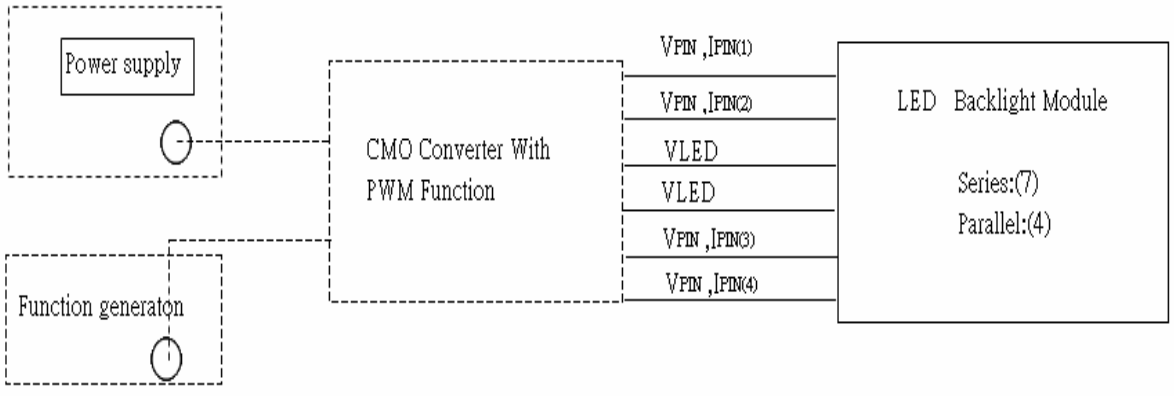
4.3.3 BACKLIGHT UNIT (LED matrix is 7S4P)

Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
LED Light Bar Input Voltage Per Input Pin	VPIN	---	21.7	23.8	V	(1), Duty=100%, IPIN=65mA
LED Light Bar Current Per Input Pin	IPIN	---	65	70	mA	(1), (2) Duty=100%
LED Life Time	LLED	30000	---	---	Hrs	(3)
Power Consumption	PBL	---	5.64	6.66	W	(1) Duty=100%, IPIN=65mA

Note (1) LED light bar input voltage and current are measured by utilizing a true RMS multimeter as shown below:

Note (2) PBL = IPIN × VPIN×（4）input pins , LED light bar circuit is 7Series 4Parallels.

Note (3) The lifetime of LED is defined as the time when LED packages continue to operate under the conditions at Ta = 25 ±2 ℃ and I= (65)mA (per chip) until the brightness becomes ≦ 50% of its original value.



The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

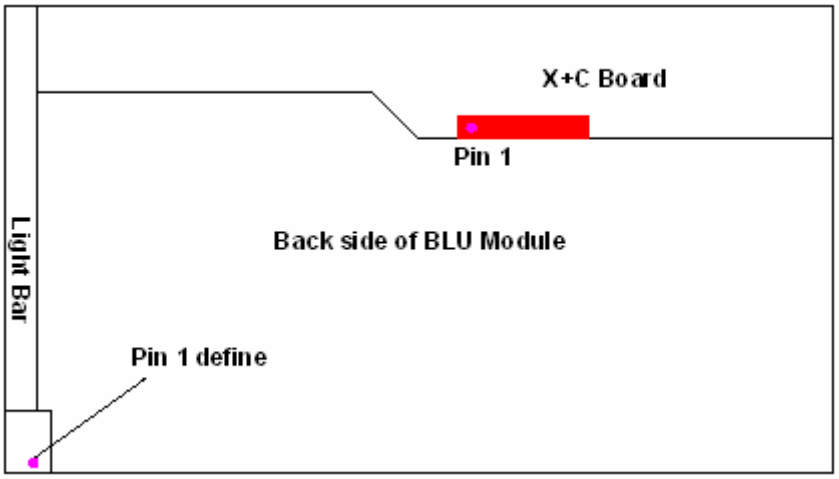
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

4.3.4 LIGHTBAR Connector Pin Assignment

Connector: 3707K-Q06N-00L (Entery)

Pin number	Description
1	Cathode of LED string1
2	Cathode of LED string2
3	VLED
4	VLED
5	Cathode of LED string3
6	Cathode of LED string4

4.4 LVDS INPUT SIGNAL SPECIFICATIONS



4.4.1 LVDS DATA MAPPING TABLE

LVDS Channel O0	LVDS output	D7	D6	D4	D3	D2	D1	D0
	Data order	OG0	OR5	OR4	OR3	OR2	OR1	OR0
LVDS Channel O1	LVDS output	D18	D15	D14	D13	D12	D9	D8
	Data order	OB1	OB0	OG5	OG4	OG3	OG2	OG1
LVDS Channel O2	LVDS output	D26	D25	D24	D22	D21	D20	D19
	Data order	DE	NA	NA	OB5	OB4	OB3	OB2
LVDS Channel O3	LVDS output	D23	D17	D16	D11	D10	D5	D27
	Data order	NA	OB7	OB6	OG7	OG6	OR7	OR6
LVDS Channel E0	LVDS output	D7	D6	D4	D3	D2	D1	D0
	Data order	EG0	ER5	ER4	ER3	ER2	ER1	ER0
LVDS Channel E1	LVDS output	D18	D15	D14	D13	D12	D9	D8
	Data order	EB1	EB0	EG5	EG4	EG3	EG2	EG1
LVDS Channel E2	LVDS output	D26	D25	D24	D22	D21	D20	D19
	Data order	DE	NA	NA	EB5	EB4	EB3	EB2
LVDS Channel E3	LVDS output	D23	D17	D16	D11	D10	D5	D27
	Data order	NA	EB7	EB6	EG7	EG6	ER7	ER6

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

4.4.2 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

Color		Data Signal																							
		Red								Green								Blue							
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale Of Red	Red(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(253)	1	1	1	1	1	1	0	1	0	0	0	:0	0	0	0	0	0	0	0	0	0	0	0	:0
	Red(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Green(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0
	Green(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	Green(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Gray Scale Of Blue	Blue(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Note (1) 0: Low Level Voltage, 1: High Level Voltage

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

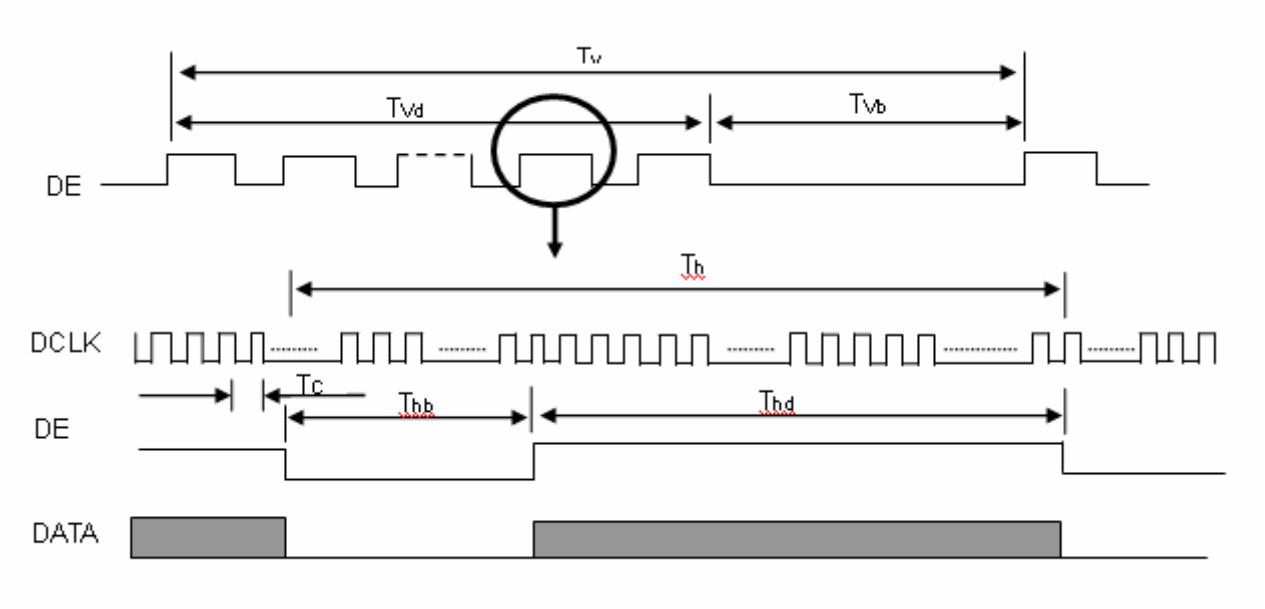
4.5 DISPLAY TIMING SPECIFICATIONS

The input signal timing specifications are shown as the following table and timing diagram.

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
LVDS Clock	Frequency	Fc	62.9	75.4	95.6	MHz	-
	Period	Tc	10.5	13.2	15.9	ns	
	Input cycle to cycle jitter	T_{rcl}	-0.02*Tc	---	0.02*Tc	ns	(1)
	Input Clock to data skew	TLVCCS	-0.02*Tc	---	0.02*Tc		(2)
	Spread spectrum modulation range	Fclkin_mod	0.97*FC	---	1.03*FC	MHz	(3)
	Spread spectrum modulation frequency	F_{SSM}	---	---	100	KHz	
Vertical Display Term	Frame Rate	Fr	50	60	76	Hz	
	Total	Tv	780	806	900	Th	Tv=Tvd+Tvb
	Active Display	Tvd	—	768	—	Th	-
	Blank	Tvb	18	38	132	Th	-
Horizontal Display Term	Total	Th	1400	1560	1800	Tc	Th=Thd+Thb
	Active Display	Thd	—	1366	—	Tc	-
	Blank	Thb	40	194	434	Tc	-

Note: Because this module is operated by DE only mode, Hsync and Vsync input signals are ignored.

INPUT SIGNAL TIMING DIAGRAM

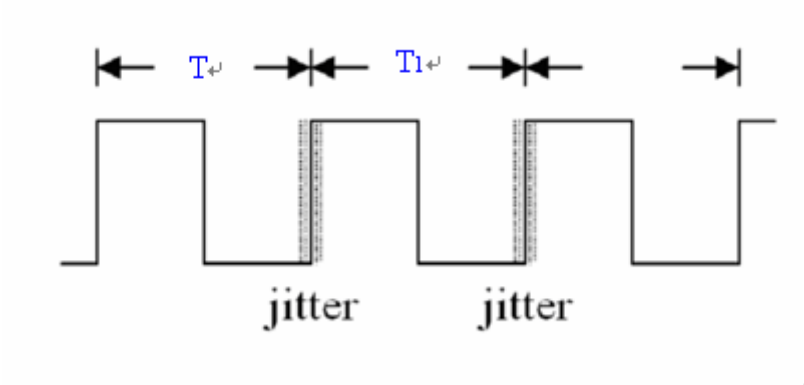


The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

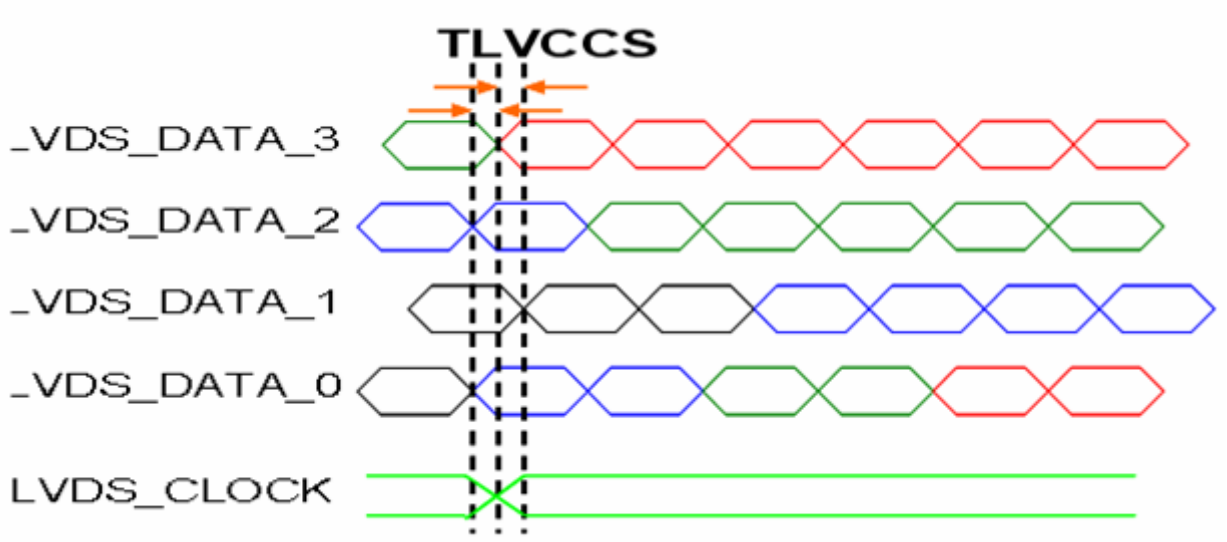
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

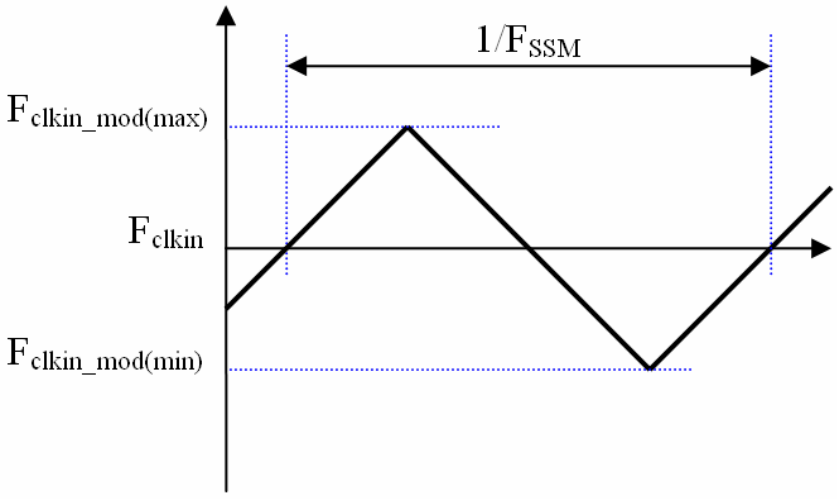
Note (1) The input clock cycle-to-cycle jitter is defined as below figures. Trcl = I T_1 – TI



Note (2) Input Clock to data skew is defined as below figures.



Note (3) The SSCG (Spread spectrum clock generator) is defined as below figures.

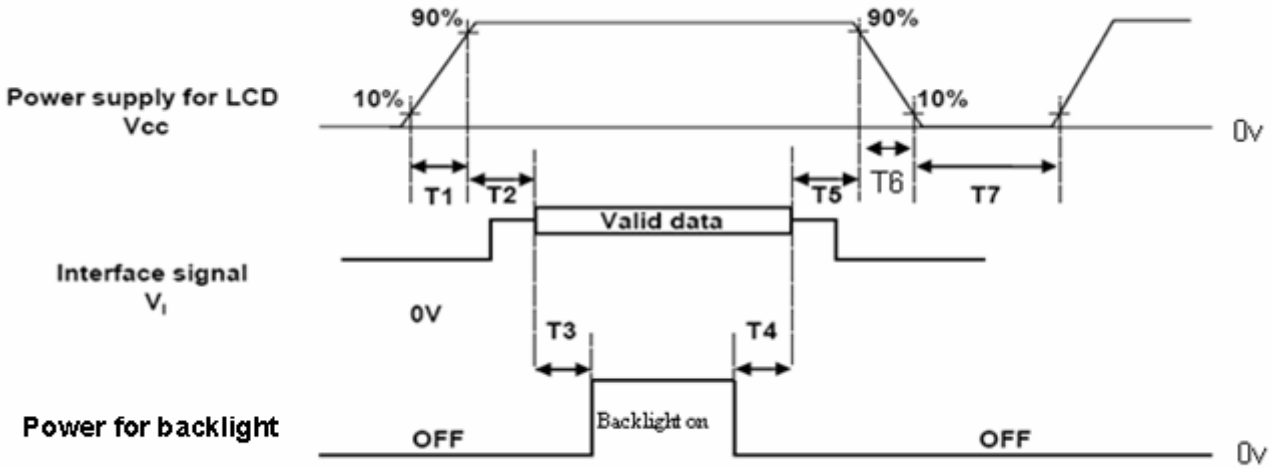


The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

4.6 POWER ON/OFF SEQUENCE

The power sequence specifications are shown as the following table and diagram.



Timing Specifications:

Parameters	Values			Units
	Min	Typ.	Max	
T1	0.1	-	10	ms
T2	0	30	50	ms
T3	200	250	-	ms
T4	100	250	-	ms
T5	0	20	50	ms
T6	0.1	-	50	ms
T7	1000	-	-	ms

Note (1) The supply voltage of the external system for the module input should be the same as the definition of Vcc.
Note (2) When the backlight turns on before the LCD operation of the LCD turns off, the display may momentarily become abnormal screen.
Note (3) In case of VCC = off level, please keep the level of input signals on the low or keep a high impedance.
Note (4) T4 should be measured after the module has been fully discharged between power off and on period.
Note (5) Interface signal shall not be kept at high impedance when the power is on.
Note (6) CMI won't take any responsibility for the products which are damaged by the customers not following the Power Sequence.
Note (7) There might be slight electronic noise when LCD is turned off (even backlight unit is also off). To avoid this symptom, we suggest "Vcc falling timing" to follow "t6 spec".

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

5. OPTICAL CHARACTERISTICS

5.1 TEST CONDITIONS

Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	°C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V_{CC}	5	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
LED Light Bar Input Current Per Input Pin	I_{PIN}	60 ± 1.2	mA_{DC}
PWM Duty Ratio	D	100	%
LED Light Bar Test Converter	TEST01001 T2-D1		

5.2 OPTICAL SPECIFICATIONS

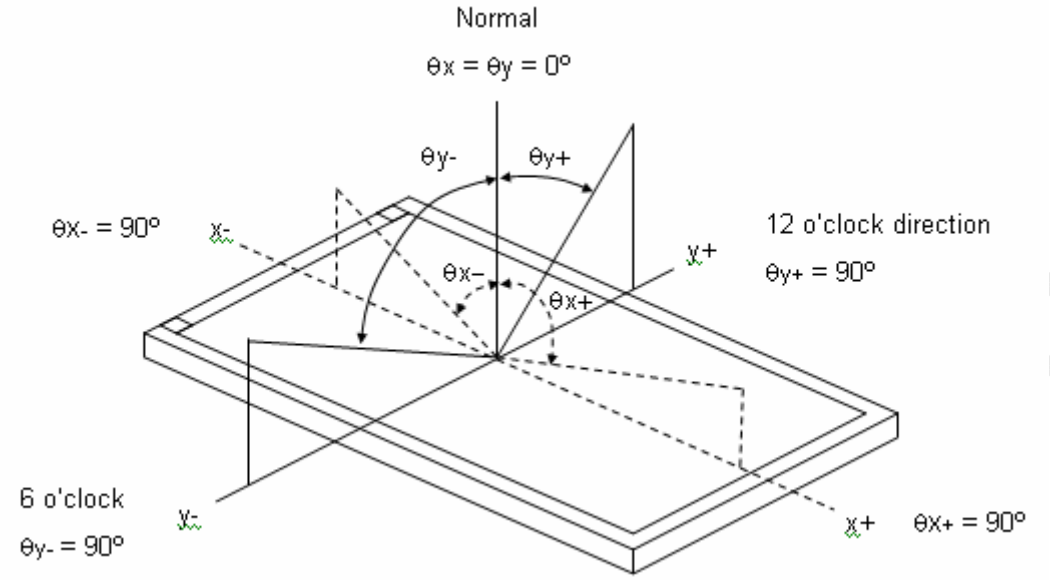
The relative measurement methods of optical characteristics are shown in 5.2. The following items should be measured under the test conditions described in 5.1 and stable environment shown in Note (5).

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Color Chromaticity (CIE 1931)	Red	Rx	θ_x=0°, θ_Y =0°	Typ – 0.03	TBD	Typ + 0.03	-	(1), (5)
		Ry			TBD			
	Green	Gx			TBD			
		Gy			TBD			
	Blue	Bx			TBD			
		By			TBD			
	White	Wx			0.313			
		Wy			0.329			
Center Luminance of White (Center of Screen)		L_C		250	300	-	cd/m^2	(4), (5)
Contrast Ratio		CR		700	1000	-	-	(2), (5)
Response Time		T_R	θ_x=0°, θ_Y =0°	-	1.5	3	ms	(3)
		T_F		-	3.5	7		
White Uniformity		δ_W	θ_x=0°, θ_Y =0°	0.70	0.75		-	(5), (6)
Viewing Angle	Horizontal	θx- + θx+	CR ≧ 10	150	170	-	Deg.	(1), (5)
	Vertical	θy- + θy+		140	160	-		
Viewing Angle	Horizontal	θx- + θx+	CR ≧ 5	160	178	-	Deg.	(1), (5)
	Vertical	θy- + θy+		150	170	-		

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

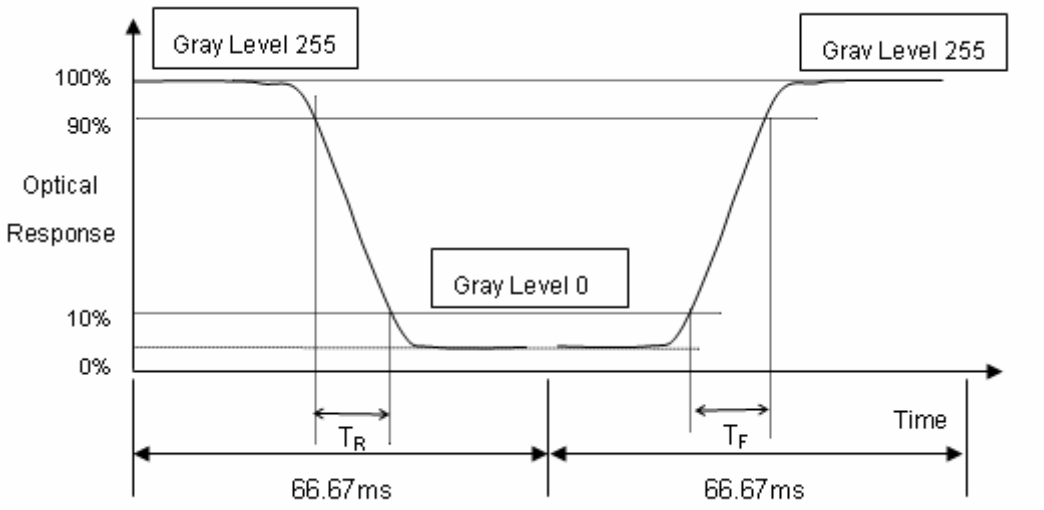
Note (1) Definition of Viewing Angle (θx, θy):



Note (2) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.
Contrast Ratio (CR) = L255 / L0
L255: Luminance of gray level 255
L 0: Luminance of gray level 0
CR = CR (5)
CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (6).

Note (3) Definition of Response Time (T_R, T_F):



The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Note (4) Definition of Luminance of White (L_C):

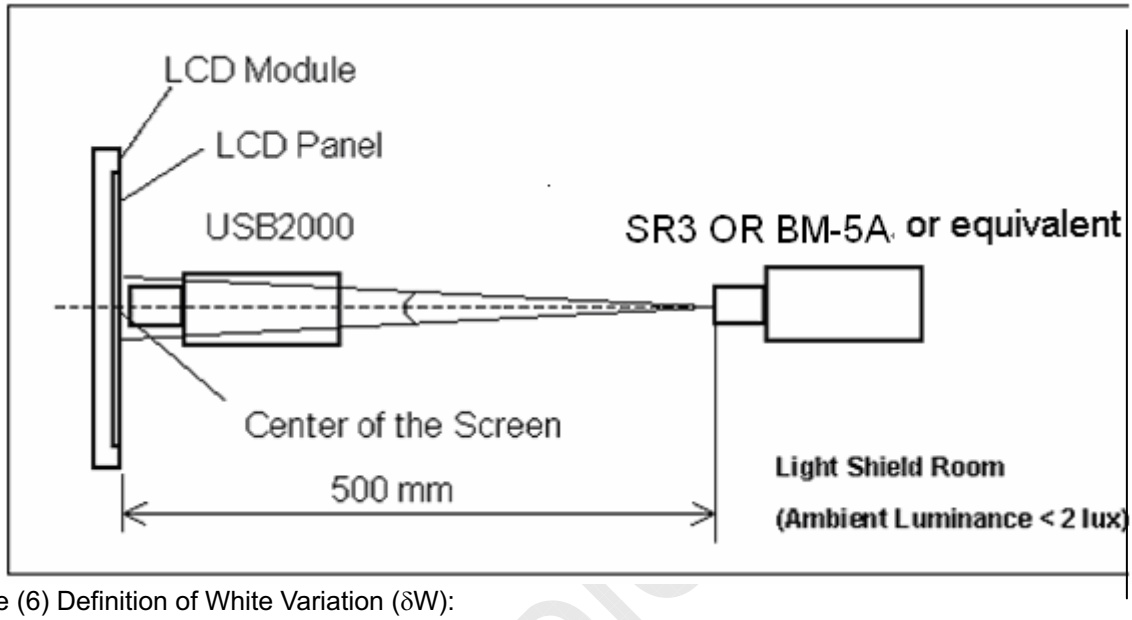
Measure the luminance of gray level 255 at center point

L_C = L (5)

L (x) is corresponding to the luminance of the point X at Figure in Note (6).

Note (5) Measurement Setup:

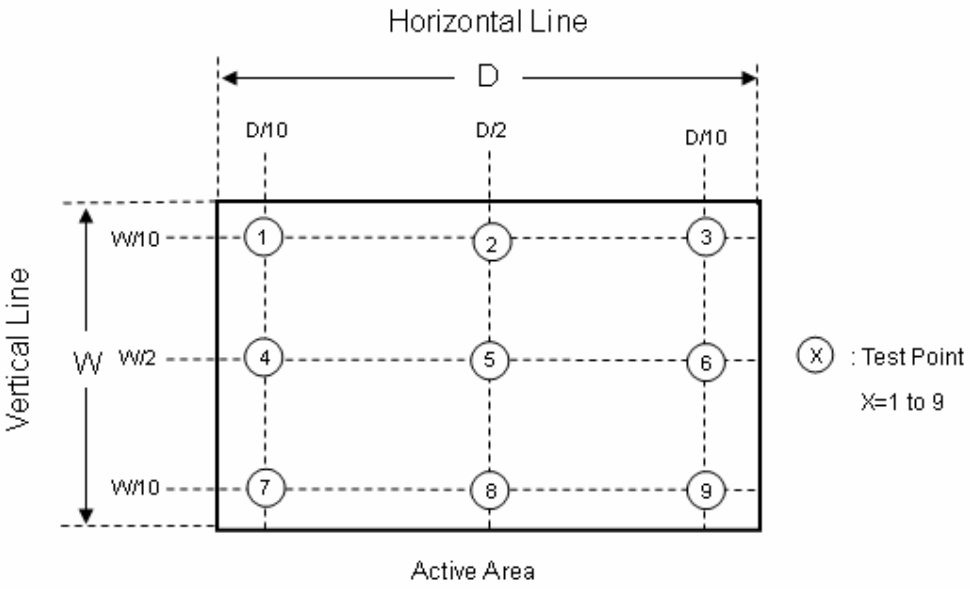
The LCD module should be stabilized at given temperature for 40 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 40 minutes in a windless room.



Note (6) Definition of White Variation (δW):

Measure the luminance of gray level 255 at 9 points

δW = Maximum [L (1) ~ L (9)] / Minimum [L (1) ~ L (9)]



The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

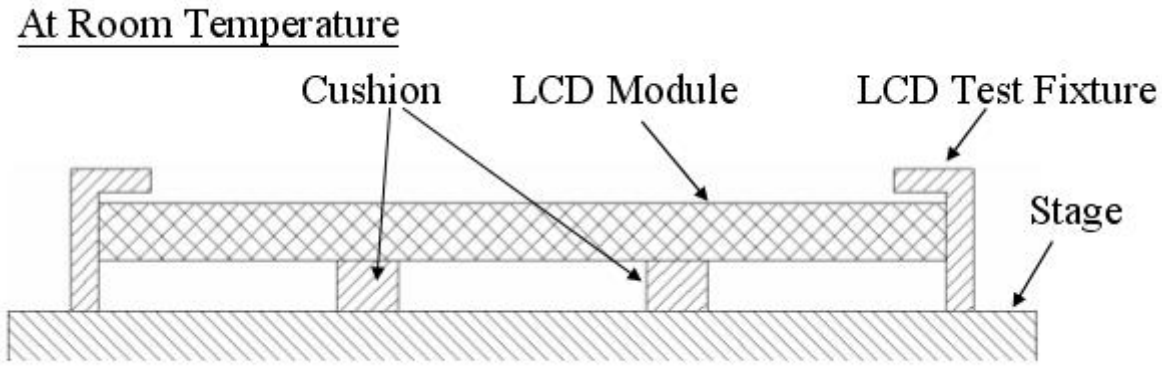
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

6. RELIABILITY TEST ITEM

Items	Required Condition	Note
Temperature Humidity Bias (THB)	Ta= 50℃ , 80%RH, 240hours	
High Temperature Operation (HTO)	Ta= 50℃ , 240hours	
Low Temperature Operation (LTO)	Ta= 0℃ , 240hours	
High Temperature Storage (HTS)	Ta= 60℃ , 240hours	
Low Temperature Storage (LTS)	Ta= -20℃ , 240hours	
Vibration Test (Non-operation)	Acceleration: 1.5 G Wave: Half-sine Frequency: 10 - 300 Hz Sweep: 30 Minutes each Axis (X, Y, Z)	
Shock Test (Non-operation)	Acceleration: 50 G Wave: Half-sine Active Time: 11 ms Direction : ± X, ± Y, ± Z.(one time for each Axis)	
Thermal Shock Test (TST) (Non-operation)	-20℃/30min , 60℃/ 30min , 100 cycles	
On/Off Test	25℃ ,On/10sec , Off /10sec , 30,000 cycles	
ESD (Electro Static Discharge)	Contact Discharge: ± 8KV, 150pF(330Ω)	
	Air Discharge: ± 15KV, 150pF(330Ω)	
Altitude Test	Operation:10,000 ft / 24hours Non-Operation:30,000 ft / 24hours	

Note (1) criteria : Normal display image with no obvious non-uniformity and no line defect.
Note (2) Evaluation should be tested after storage at room temperature for more than two hour
Note (3) At testing Vibration and Shock, the fixture in holding the module has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.
The fixing condition is shown as below:



The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

7. PACKING

7.1 PACKING SPECIFICATIONS

(1) 10 LCD modules / 1 Box
(2) Box dimensions: 500(L) X 285(W) X 360(H) mm
(3) Weight: approximately: 17kg (10 modules per box)

7.2 PACKING METHOD

(1) Carton Packing should have no failure in the following reliability test items.

Test Item	Test Conditions	Note
Vibration	ISTA STANDARD Random, Frequency Range: 25 – 500 Hz Top & Bottom: 30 minutes (+Z), 30 min (-Z), Right & Left: 30minutes (X) Back & Forth 30 minutes (Y)	Non Operation
Dropping Test	1 Corner , 3 Edge, 6 Face, 60cm	Non Operation

www.panelook.com

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

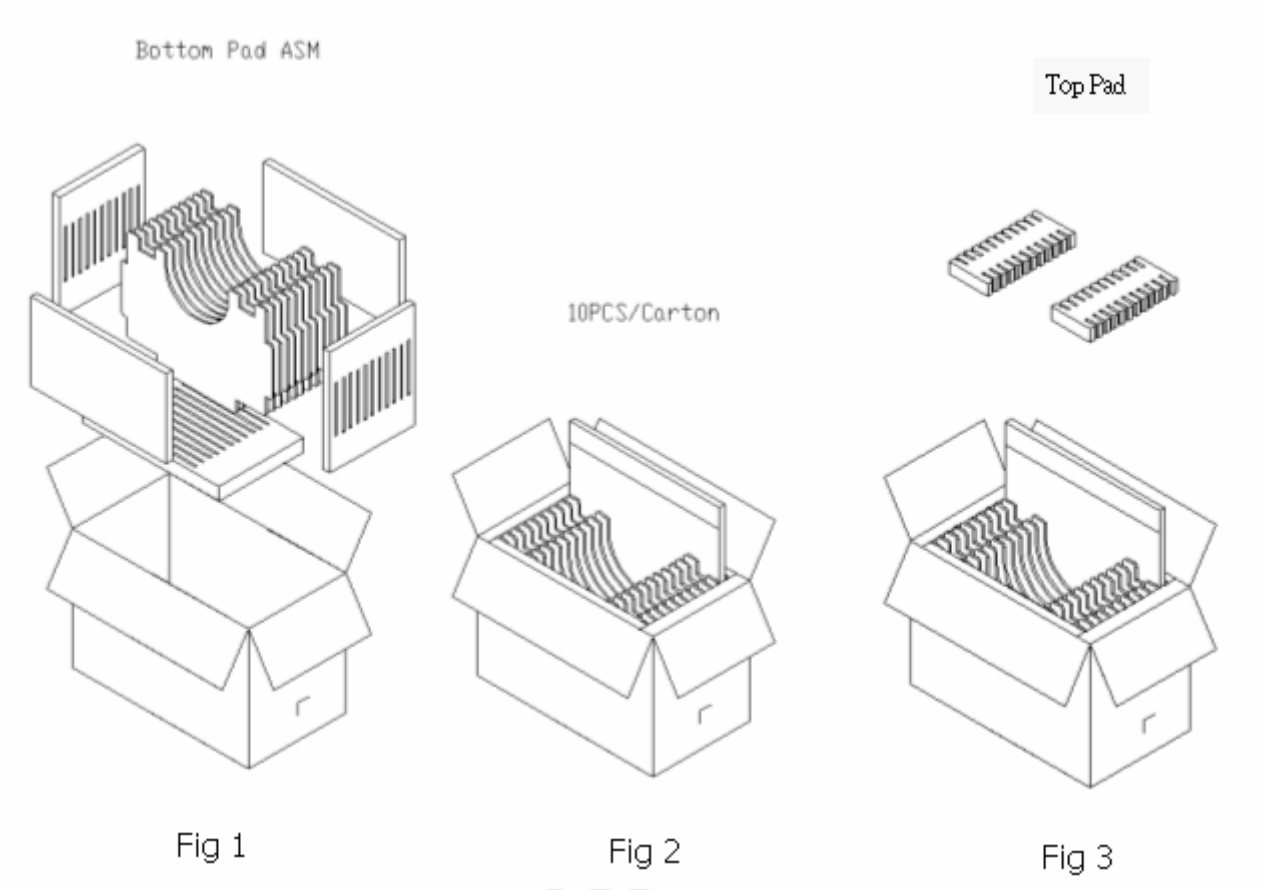


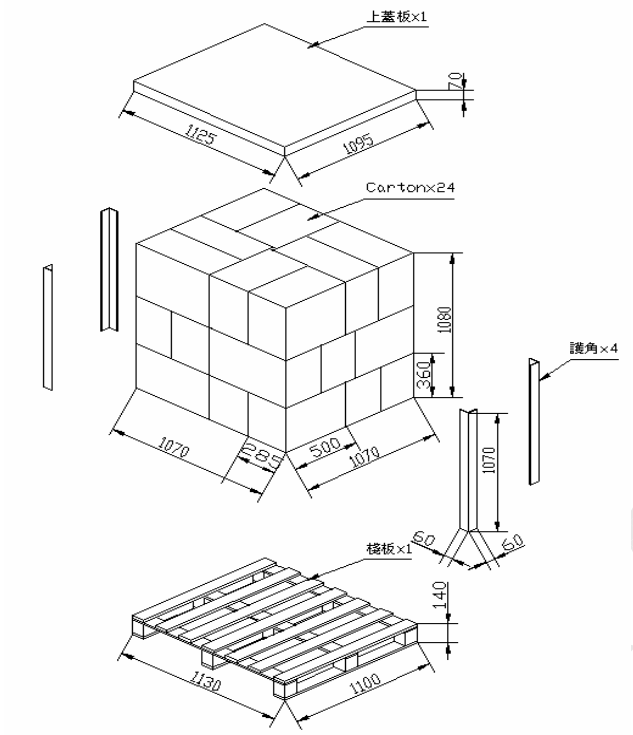
Figure. 7-1 Packing method

7.3 PALLET

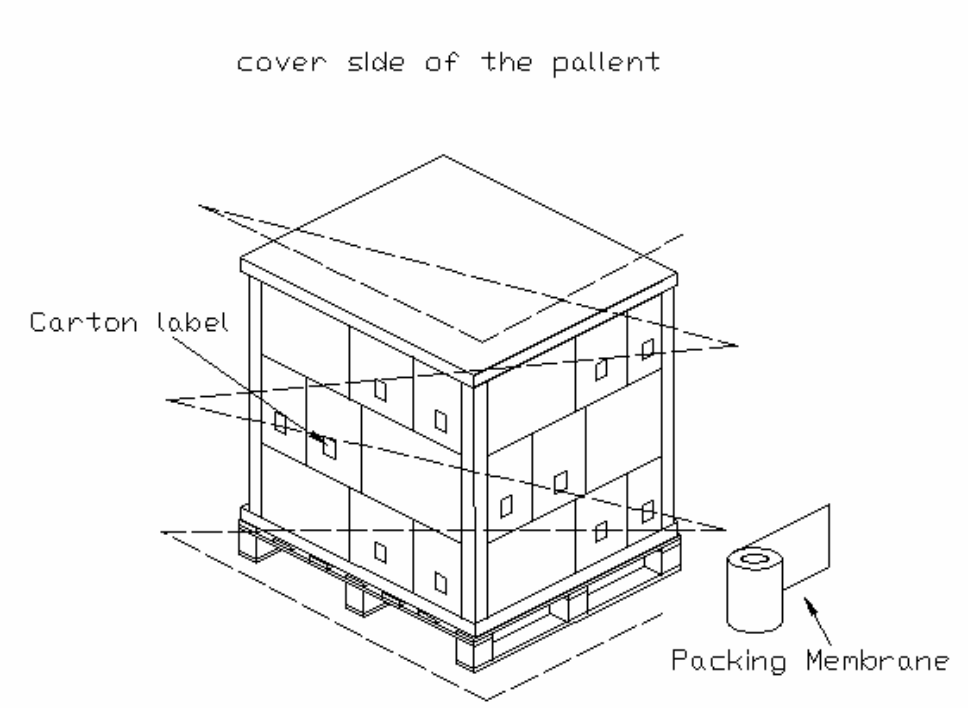
(1) Resolving drawing

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com



(2) General drawing



The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

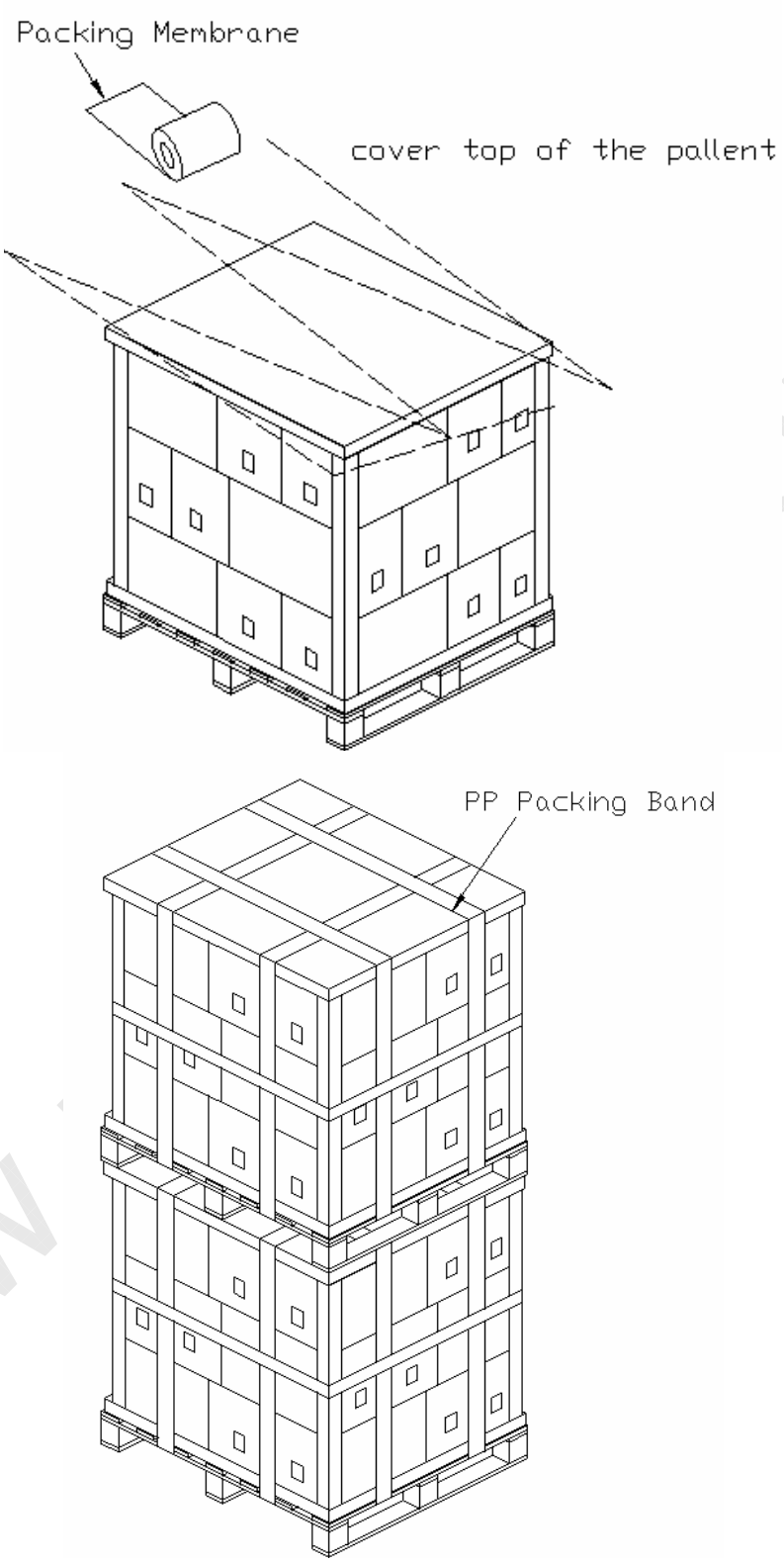


Figure. 7-2 Packing method

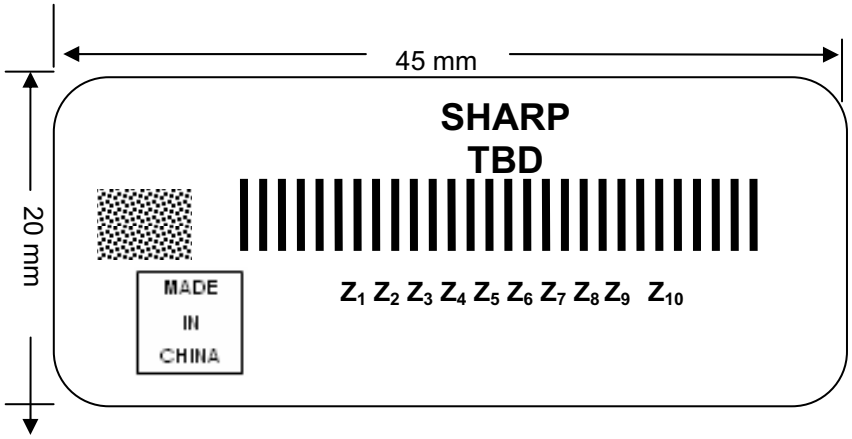
The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

8. CMI MODULE LABEL

8.1 Module Label

The barcode nameplate is pasted on each module as illustration, and its definitions are as following explanation.



(a) Model Name: The new model name need to be provided by sharp, and will be update in Final-Spec. The style of current model MT185GW01 above is for referrence.
(b) Version: TBD
(c) barcode definition:
Serial ID: $Z_1 Z_2 Z_3 Z_4$-- $Z_5 Z_6 Z_7 Z_8 Z_9$-- Z_{10}

Code	Meaning	Description
Z_1	Year	Final digit of the A.D. EX. "0" for2010
Z_2	Month	1~9, X, Y and Z. (X=Oct. Y=Nov. Z=Dec.)
Z_3	Date	Reference Idea for Day Code
Z_4	Production Place	(E4 =I ,H1=J , New Factory in NB=K, L, M,N,P…)
$Z_5 Z_6 Z_7 Z_8 Z_9$	Serial No	Serial No: 0~99999, Over 10Kpcs use A, B, C… For example: Actual / Print 99,999 / 99999 100,000~ / A0000~ 110,000~ / B0000~ 120,000~ / C0000~
Z_{10}	Version	The first Version is A, version changes with design change. Version with 26 letters, For example: A, B, C

(d) Serial ID II (CMI internal use)
(e) Factory ID:

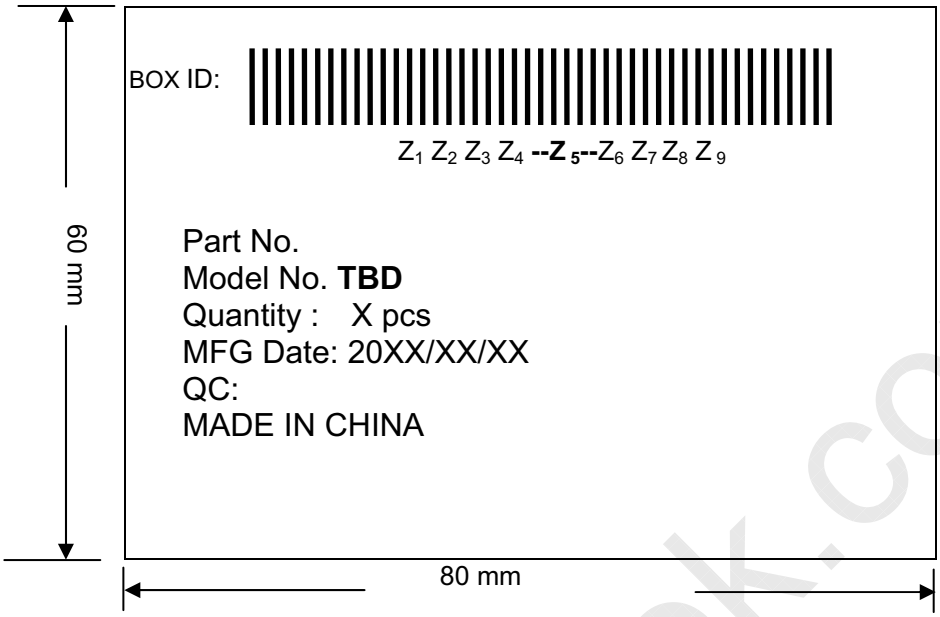
Region	Factory ID	Region	Factory ID
H area of LH	J	C area of NB	M
E area of LH	I	D area of NB	N
A area of NB	K	E area of NB	P
B area of NB	L		

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

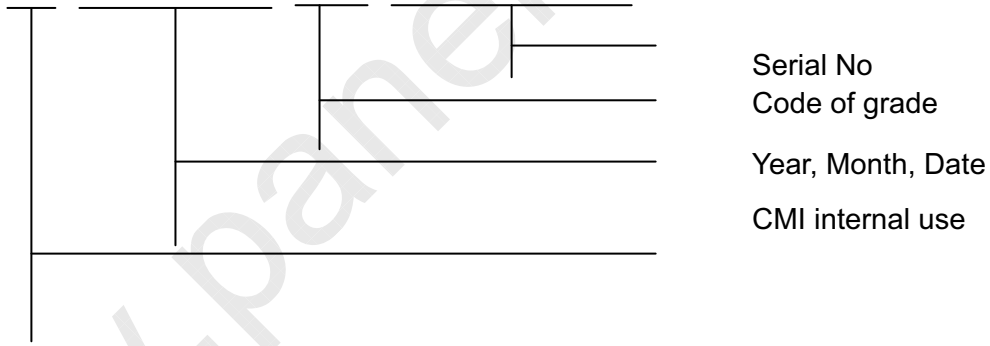
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

8.2 Carton Label _ CMI



(a) Model Name: The new model name need to be provided by sharp
[Sharp] TBD; [CMI] :M185BGE-L21
(b) Version: Sharp :TBD ; CMI:V.0
(c) Packing quantity: 10 pcs
(d) Serial ID: Z_1 Z_2 Z_3 Z_4 Z_5 Z_6 Z_7 Z_8 Z_9



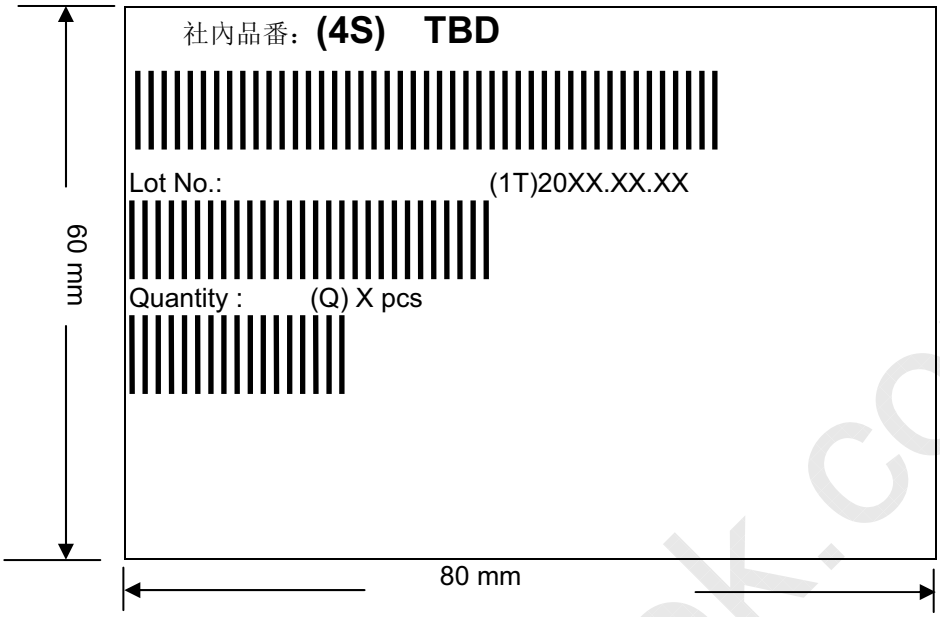
Serial ID includes the information as below:
(a) Manufactured Date: Year: TBD
Month: 1~9 & A~C for Jan. ~ Dec.
Date: 1~9 & A~Z (exclude I, O, Q, U) for 1st~31th
(b) Code of grade: 1,2, 3, 5, E
(c) Serial No: Module packing sequence no

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

8.3 Carton Label Sharp



(a) Sharp Model Name: The new model name need to be provided by sharp, and will be update in Final-spec.The style of current model MT185GW01 above is for referrence.
(b) Lot No.: Year: TBD
Month: 1~9 & A~C for Jan. ~ Dec.
Date: 1~9 & A~Z (exclude I, O, Q, U) for 1st~31th
(c) Packing quantity: 10pcs

www.panelook.com

The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

9. PRECAUTIONS

9.1 ASSEMBLY AND HANDLING PRECAUTIONS

(1) Do not apply rough force such as bending or twisting to the module during assembly.
(2) To assemble or install module into user's system can be only in clean working areas. The dust and oil may cause electrical short or worsen the polarizer.
(3) It's not permitted to have pressure or impulse on the module because the LCD panel and Backlight will be damaged.
(4) Always follow the correct power sequence when LCD module is connecting and operating. This can prevent damage to the CMOS LSI chips during latch-up.
(5) Do not pull the I/F connector in or out while the module is operating.
(6) Do not disassemble the module.
(7) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.
(8) It is dangerous that moisture come into or contacted the LCD module, because moisture may damage LCD module when it is operating.
(9) High temperature or humidity may reduce the performance of module. Please store LCD module within the specified storage conditions.
(10)When ambient temperature is lower than 10ºC may reduce the display quality. For example, the response time will become slowly.

9.2 STORAGE PRECAUTIONS

(1) Do not leave the module in high temperature, and high humidity for a long time. It is highly recommended to store the module with temperature from 0℃ to 35℃ and relative humidity of less than 70%
(2) Do not store the TFT – LCD module in direct sunlight
(3) The module should be stored in dark place. It is prohibited to apply sunlight or fluorescent light in storing

9.3 OPERATION PRECAUTIONS

(1) The LCD product should be operated under normal condition.
Normal condition is defined as below :
Temperature : 20±15℃
Humidity: 65±20%
Display pattern : continually changing pattern(Not stationary)
(2) If the product will be used in extreme conditions such as high temperature,high humidity,high altitude ,display pattern or operation time etc…It is strongly recommended to contact CMI for application engineering advice . Otherwise , Its reliability and function may not be guaranteed.

9.4 SAFETY PRECAUTIONS

(1) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.
(2) After the module's end of life, it is not harmful in case of normal operation and storage.

9.5 SAFETY STANDARDS

The LCD module should be certified with safety regulations as follows:
(1) UL60950-1 or updated standard.
(2) IEC60950-1 or updated standard.

9.6 OTHER

When fixed patterns are displayed for a long time, remnant image is likely to occur.

Appendix. OUTLINE DRAWING

〔Refer to the next 2 pages〕

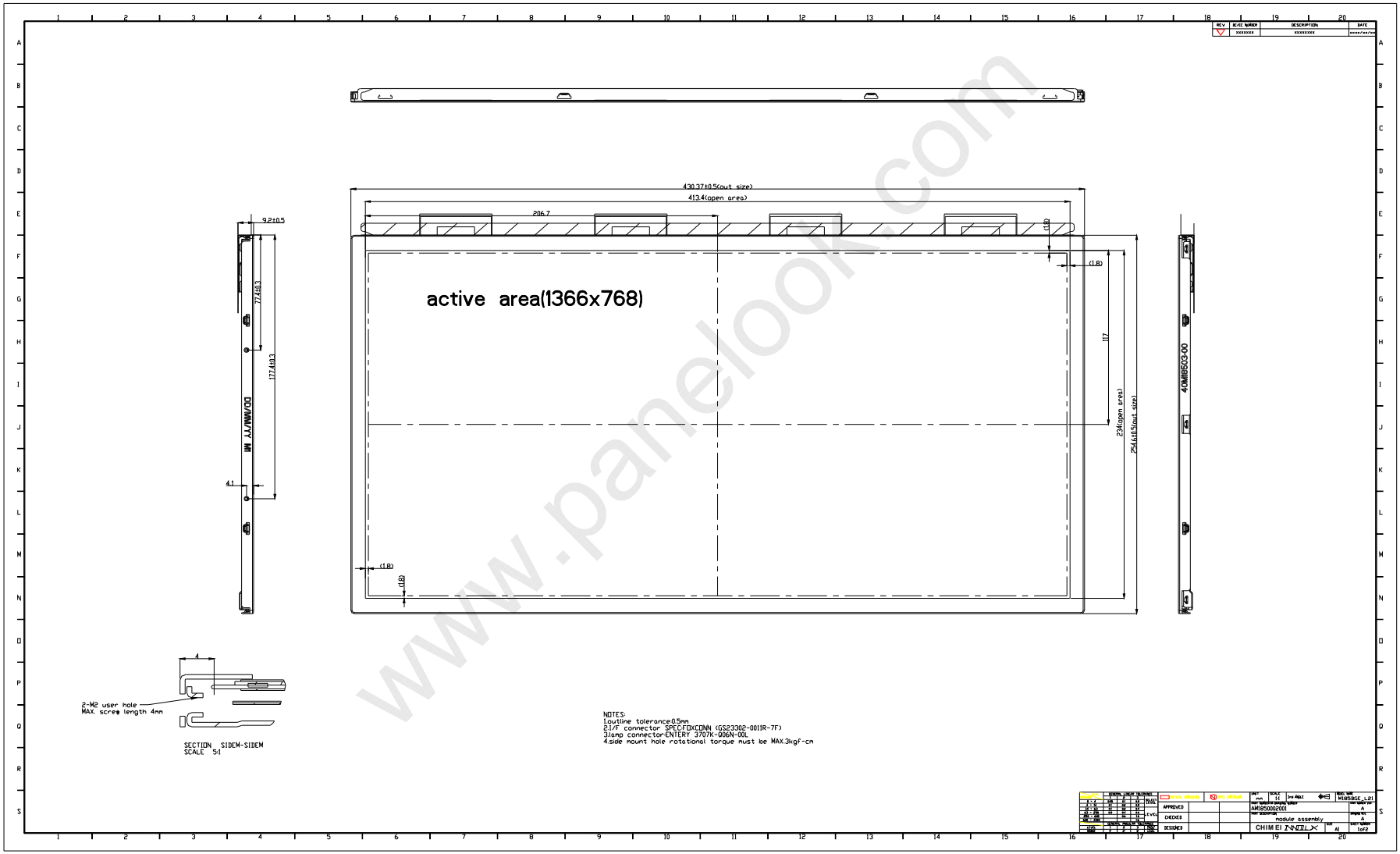
The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

I. ME Drawing

(1) Front view

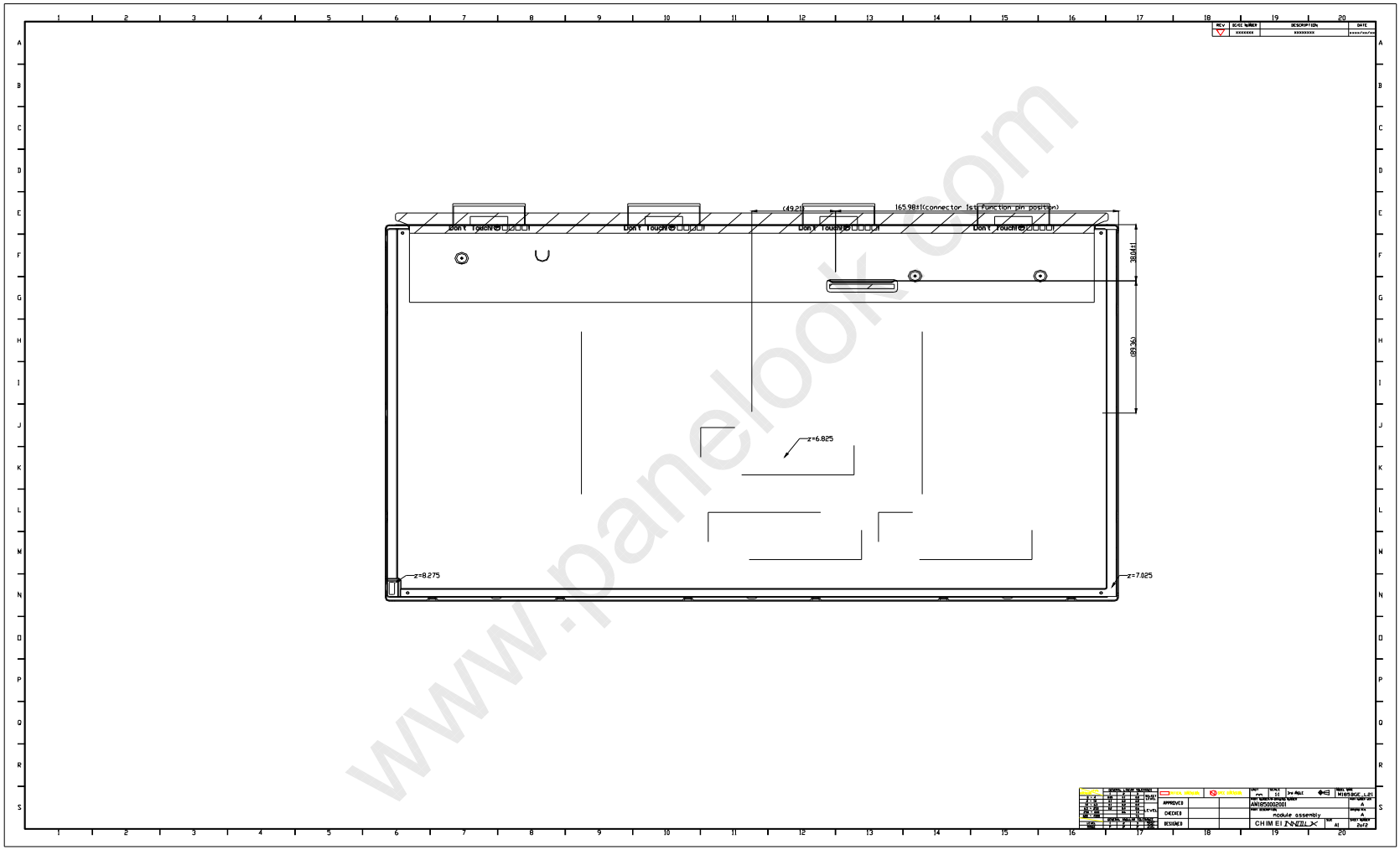


The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

(2) Back view



The copyright belongs to CHIMEI InnoLux. Any unauthorized use is prohibited.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com